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ABSTRACT

This preschool program offered a highly structured curriculum in which language development was fostered through encouraging verbal responses in a game format context. The curriculum, based on skills and concepts required for success in elementary school, included language arts, reading readiness, mathematical concepts, science, and social studies. Small instructional groups of five pupils allowed the teacher to correct or reinforce verbal responses immediately. Directed play periods stressed visual-motor activities such as puzzles, blocks, clay, nesting and stacking toys, and pounding sets. Drawn from economically depressed neighborhoods, two-thirds of the pupils were black and the remainder Caucasian. The results of six standardized tests administered at the end of the first grade showed that project pupils performed better than comparable pupils who had attended a traditional preschool. The program pupils, furthermore, scored well above grade level on the California Achievement Tests in reading, language, and arithmetic. Tables showing test data, and examples of specific activities used in the program are also included. (KG)

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THE AMELIORATIVE PRESCHOOL PROGRAM
Champaign, Illinois

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FOREWORD

This project report is part of an independent study of selected exemplary programs for the education of disadvantaged children completed by the American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif., under contract with the U.S. Office of Education.

The researchers report this project significantly improved the educational attainment of the disadvantaged children involved. Other communities, in reviewing the educational needs of the disadvantaged youngsters they serve, may wish to use this project as a model - adapting it to their specific requirements and resources.

Bureau of Elementary and Secondary
Education

THE AMELIORATIVE PRESCHOOL PROGRAM
CHAMPAIGN, ILLINOIS

Introduction

This program* was aimed at providing improved educational intervention for disadvantaged preschool children. It offered a highly structured curriculum in which language development was fostered through verbal responses being made repeatedly by the pupils in a productive, meaningful context based on a special game format.

The pupils in the program were selected from families in the economically depressed neighborhoods of Champaign-Urbana, a community of 100,000. Many of the families were receiving public aid. Parental consent was obtained for each child to attend the program; only children with no preschool experience were considered. About two-thirds of the pupils were Negro, and the remainder were Caucasian. Half of the pupils were girls.

The program began in 1965, when 30 pupils were selected (from a pool of 75) to receive treatment for 1 year immediately prior to entering kindergarten. On the 1960 Stanford-Binet Intelligence Scale, one-third of the pupils in each class of 15 had IQ's over 100, one-third were between 90 and 99, and one-third were between 70 and 89. This group of 30 received the program for the academic year and received a supportive program 1 hour a day while in kindergarten.

Other groups later received the program to test its effectiveness a) when initiated with 3-year-old children and maintained for 2 years, b) when supported by a mother-involvement project, c) when applied by paraprofessionals, and d) when given to low IQ children.

The crucial evaluation of the program's success was carried out when the pupils were at the end of first grade. At that point their performance on six standardized measures yielded higher scores than that of comparable pupils who had attended a traditional preschool. The program pupils performed well above grade level on the California Achievement Tests in reading, language, and arithmetic. Evaluations of the other groups who received the program indicated that an earlier and longer intervention and the mother-involvement modifications did not enhance the program results, but that adult paraprofessionals could effectively implement the program and that low IQ children could benefit considerably from it.

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* This program was part of a broader design which included five interventions. Two of these effected greater changes, compared with the other three; one was the Ameliorative Program, the other the Academic Preschool, described in the 1968 AIR study (Hawkridge, D. G., Chalupsky, A. B., & Roberts, A. O. H. 1968).

Personnel

A. Project Director

A Professor of Education at the University of Illinois, the project director held the EdD degree, and had many years of experience in early childhood education. The Ameliorative Program was only one of her responsibilities, but she had the task of supervising its general operation as well as selecting and training teachers, and designing the evaluation.

B. Teachers

Since each class met for only a half day, the three teachers required for each class were equivalent to 1.5 full-time personnel. Those employed in the program were fully trained, with experience in early childhood teaching. With one exception, all were female. They averaged about 35 years of age. Each taught a group of five children at a time in the program. In-service training was provided for the teachers by weekly staff meetings.

C. Statistical Consultants

Several members of university communities were consulted as to the soundness of the statistical design and analysis of the data obtained from the Ameliorative Program and the other interventions.

D. Qualified Psychological Examiners

The children in the program were tested by school psychologists from outside the program who were fully qualified psychological examiners normally employed by the public school system. These examiners were not aware which children belonged to which group.

A public health nurse assisted with health examinations and immunizations. A social worker was available to handle special family problems for children referred by the teachers, but only worked about 1 day a week for the program. This applied to all groups in this program.

Methodology: General

The basic assumption of the Ameliorative Program was that if disadvantaged children received treatment in a structured preschool providing much experience in verbalization associated with manipulative activities, these children would be able to benefit sufficiently from traditional kindergarten (plus a 1-hour a day supportive program) to be ready for first grade.

The children in the program were bused to school, where they attended about 135 minutes each day for about 8 months. They were taught in classes of 15. Each class had three teachers, of whom one was qualified to teach preschool; the other two were college graduates experienced in working with young children, and certified as teachers. One teacher served each of the IQ groupings (already described above).

The curriculum was based on the skills and concepts required by pupils in early elementary school; a deliberate attempt was made to prepare pupils for what they would meet when they left the program. The starting point for these activities was the diagnosis of each pupil provided by the pretest battery of standardized tests (Stanford-Binet, ITPA, PPVT, and Frostig). The language processes embodied in the ITPA were incorporated into daily lesson plans.

A typical day was split into three formal learning periods, devoted respectively to mathematical concepts, language arts (including reading readiness), and science plus social studies. Cubicles supplied with materials for studying each of these were situated off a main assembly room. Each teacher moved from one cubicle to another with her group of five children, the group staying with her throughout the day. In addition to the three formal periods, a music period, directed play time, and "juice time" completed the school day. During the music and directed play periods, children were free to move out of their own teacher's group. The directed play made no use of outdoor play equipment or traditional preschool toys, but stressed visual-motor activities such as puzzles, blocks, clay, nesting and stacking toys, and pounding sets. The directed play was used to reinforce concepts taught in the formal periods.

Because each teacher had only five pupils, she was able to provide plenty of feedback to her charges. She corrected incorrect responses immediately, often through repeating model sentences or through duplicate layouts of simple manipulative materials. She praised correct responses consistently. She reviewed frequently the ideas and skills already taught, providing the children with many chances to use what they had newly learned.

Methodology: Specific

Karnes (1969) has summarized some of the specific activities within the program:

> The general goals of the social studies and science curriculum were to teach useful vocabulary, to develop skills of classification, to provide simple experiences in developing sensory discriminations and in observing natural phenomena. The curriculum began with a unit on body awareness and self-concept developed through the use of body exercises, songs, pre-cut unassembled figures, and body outlines of the children. A unit on family members and immediate home environment followed which used integrated pictures, rubber play people, and family puppets; clothing cut from catalogs and sorted according to body parts, family member, or season; furniture items cut from catalogs and sorted according to type or appropriate room; go-together pictures such as a hand and a mitten, a chair and a table. A kitchen science unit, through the demonstration of simple scientific principles, provided opportunities for careful observation and verbalization of what had been seen, heard, tasted, or touched. Basic vocabulary included melt, boil, and freeze; dry and wet; relative temperature words such as cool, warm, and hot; dissolve; taste words such as sweet, sour, and salty. Additional units in this curriculum were germination of seeds and

plant growth, farm and wild animals, fruits, vegetables, community buildings and workers, vehicles, weather, seasons, and time sense.

Objectives of the math curriculum involved the development of basic number concepts, appropriate manipulative skills, and a useful vocabulary. The general areas included the identification of five geometric shapes; one-to-one matching and its relationship to copying patterns, matching quantity, and establishing sets and verifying their equivalency; dimensional terms and seriation; counting as a functional concept; the introduction of numerals as visual symbols; and beginning addition and subtraction with manipulative objects such as popsicle sticks, bottle caps, and peg boards.

Multiple copies of inexpensive books were the most important instructional material in the language arts and reading readiness curriculum. As the teacher read, each child held his own copy of the book; he learned to hold the book right-side-up, to turn the pages singly and in sequence, to associate the pictures with the story being read, to develop left-to-right progression, and to associate the printed symbol with meaning. In addition, the small group storytime provided opportunities for reinforcing and elaborating upon vocabulary previously taught; for both short- and long-range memory activities; for sequencing events to show cause and effect and time relationships; for making inferences and, on occasion, divergent responses. Finally, as the story was read, the child heard acceptable syntactical models and the familiar constructs of the language. He absorbed the rhythms and stresses of standard, informal English. This curriculum also included activities which developed visual-motor coordination and which emphasized the rather fine visual and auditory discriminations requisite for reading readiness.

Language development received major emphasis throughout the day and especially during the three structured periods. Verbalizations in conjunction with the manipulation of concrete materials were considered to be the most effective means of establishing new language responses. The game format (card packs, lotto games, models and miniatures, sorting, matching, and classifying games) created situations where verbal responses could be made repeatedly in a productive, meaningful context without resorting to rote repetition; often the child could visually and motorically assess the correctness of his thinking before he made an appropriate verbalization. If the child was unable to make a verbal response, the teacher supplied an appropriate model; when he began to initiate such responses, the teacher had the opportunity to correct, modify, and expand his verbalizations.

Evaluation

A. Measures of Achievement

All preschool groups in the program were tested. In the case of the group followed to the end of first grade, testing was conducted annually. The results of that evaluation are summarized in Table 1 and compared with results for a Traditional Preschool Group.

TABLE 1

Scores Obtained by an Ameliorative Preschool Group and a Traditional Preschool Group at the End of First Grade

Test	Ameliorative Group (N=24)	Traditional Group (N=25)
California Achievement Tests (mean grade equivalents)		
Reading	2.1	1.7
Language	2.1	1.7
Arithmetic	1.8	1.5
Stanford-Binet Intelligence Scale (mean intelligence quotients)	104	100
Illinois Test of Psycholinguistic Abilities (mean language age in months below chronological age)	-5.5	-6.1
Frostig Developmental Test of Visual Perception (mean perception quotients)	105	97

The scores shown in Table 1 were included in an analysis of the results of the Ameliorative Group, the Traditional Group and the Academic Preschool Group (also known as the Direct Verbal Group). Analysis of covariance indicated that the three groups were significantly different in the results they obtained on the California Tests. The results of the Academic Group were very similar to those of the Ameliorative Group, and both gained higher scores than the Traditional Group. Hence it is reasonable to assume that the Ameliorative Group scored significantly better on the California Tests than the Traditional Group. This conclusion is supported by t tests of the significance of the differences between the two groups' means. The two groups did not differ significantly at pretest in Stanford-Binet IQ means ($p > .50$), while they did differ significantly at posttest in California Test means ($p < .02$ for reading, language and arithmetic).

The actual grade level for both groups in Table 1 was 1.7; the Ameliorative Group performed well above that level on the California Tests, providing additional evidence of the program's success. The Traditional Preschool Group was judged to be an appropriate comparison, having been drawn from the same pool of pupils and similarly stratified on intelligence; the groups had comparable race and sex ratios too.

When the basic Ameliorative Program was applied over 2 years, the progress made in 2 years by 13 children who entered at age 3 was not superior to that made by children in the 1-year group, who entered at age 4.

A group of 31 children in the Ameliorative Program whose mothers attended meetings to learn how to teach their children at home were compared with another group of 27 children whose mothers were not involved in this way in the program. The involvement did not result in better performances by the former group.

Other groups (total N=33) were taught the Ameliorative Program by paraprofessionals instead of trained teachers. These groups achieved broadly similar results on posttesting (at the end of the preschool year) to those of the group taught by professional staff.

A group of 15 children with a mean Stanford-Binet IQ of 66 received the basic Ameliorative Program, implemented by trained teachers. In 9 months of treatment, the group gained an average of 19 months in mental age, and an average of 12 months in language age. This result indicates the success of the program with low IQ children.

Modifications and Suggestions

Through repeated applications of the treatment with various groups as detailed under Evaluation, the basic program evolved over 4 academic years, 1965-66 through 1968-69. Further modifications (incorporating the Guilford model for creativity and the Head Start framework) are in process.

Budget

Since the work was carried out in a university setting, costs were in some cases lower than in a public school system. The estimates given here refer only to the preschool year of the program (30 pupils), when one full-time head teacher and four half-time assistants were employed in the classroom at a cost of about $17,000. The allowance for instructional supplies and equipment was $1,500. Other costs were incurred for supervisory and research personnel, but it is difficult to estimate the exact expenditure since these people were engaged in other work as well. Curriculum development cost estimates are not included here although they might be incurred by schools attempting to replicate the program.

The cost per child for replicating the program was estimated by the program director at $620 per annum.

Sources Quoted

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